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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/054,540

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Hyun-Ho Kim

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7590

11/04/2003

MYERS BIGEL SIBLEY & SAJOVEC
PO BOX 37428
RALEIGH, NC 27627

EXAMINER

PHAM, HOAI V

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 11/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/054,540

Applicant(s)

KIM ET AL.

Examiner

Hoai V Pham

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 10-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 10-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-5 and 10-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Uchiyama et al. [U.S. Pat. 6,326,315] previously applied.

Uchiyama et al. (figure 1, cols. 5-8) discloses an integrated circuit ferroelectric memory device, comprising:

an integrated circuit transistor (114) having a source and drain regions (106 and 108) (see col. 5, lines 43-47);

a ferroelectric capacitor (128) on the integrated circuit transistor having first and second sidewalls, the ferroelectric capacitor having a first electrode (121 and 122) adjacent the transistor, a second electrode (126) remote from the transistor and a ferroelectric film (124) therebetween (see col. 6, lines 5-11);

a contact plug (120) directly connected to the first electrode that electrically couples the ferroelectric capacitor to source region of the integrated circuit transistor (see col. 5, lines 62-64);

an insulating layer (136) on the first and second sidewalls of the ferroelectric capacitor, the insulating layer having a surface that is substantially coplanar with an upper surface of the second electrode (see col. 6, lines 25-29); and

a plate line (139) directly on the ferroelectric capacitor (see col. 6, lines 33-35).

With respect to claim 2, Uchiyama et al. discloses that the plate line (139) is directly on the second electrode of the ferroelectric capacitor (see fig. 1).

With respect to claim 3, Uchiyama et al. discloses that the integrated circuit ferroelectric memory device is free of a plug between the plate line and the second electrode (see fig. 1).

With respect to claim 4, Uchiyama et al. discloses that the integrated circuit ferroelectric memory device is free of an insulating layer between the plate line and the second electrode (see fig. 1).

With respect to claim 5, Uchiyama et al. discloses that the second electrode has a width and wherein the plate line is directly on the second electrode across the width (see fig. 1).

With respect to claims 10 and 12, Uchiyama et al. discloses that the first electrode and second electrode comprise platinum (col. 6, lines 14-16).

With respect to claim 11, Uchiyama et al. discloses that the ferroelectric film comprises at least one of SBT (col. 8, lines 11-16).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uchiyama et al. [U.S. Pat. 6,326,315] previously applied, as applied to claim 1 above, and further in view of Jung et al. [U.S. Pat. 6,388,281] previously applied.

Uchiyama et al. substantially discloses all the limitations as claimed above except an aluminum stripe line adjacent the second electrode and remote from the first electrode. However, Jung et al. discloses an aluminum stripe line (136) adjacent the

second electrode and remote from the first electrode (see fig. 3H and col. 8, lines 35-54). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the aluminum stripe line adjacent the second electrode of Uchiyama et al. with the structure as set forth above because as taught by Jung et al., such aluminum stripe line would provide an electrically connection to the gate electrode for shunting the gate electrode (see col. 8, lines 39-43).

Response to Arguments

6. Applicant's arguments filed 6/16/03 have been fully considered but they are not persuasive.

Applicant argues that Uchiyama does not disclose or suggests a contact plug directly connected to the first electrode that electrically couples the ferroelectric capacitor to source region of the integrated circuit transistor.

Applicant's arguments are not persuasive because Uchiyama clearly discloses a contact plug (120) directly connected to the first electrode (121 and 122) that electrically couples the ferroelectric capacitor to source region (108) of the integrated circuit transistor (see col. 5, lines 62-64). It is noted that the diffusion barrier layer (121) is a part of the first electrode because the diffusion barrier layer (121) is a conductive material (TiN). Furthermore, Applicant does not claim the first electrode is a single homogeneous material. Therefore, Uchiyama meets and anticipates the claimed invention.

Applicant's arguments with respect to claims 6-7 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoai V Pham whose telephone number is 703-308-6173. The examiner can normally be reached on 6:30A.M. - 6:00P.M..

8. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M. Fahmy can be reached on 703-308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7724 for After Final communications.

9. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



HP
Hoai Pham
October 31, 2003